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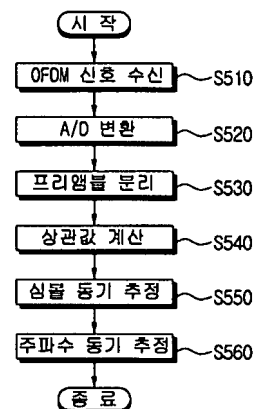
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(54) METHOD FOR GENERATING SYMMETRIC-IDENTICAL PREAMBLE AND METHOD FOR SYNCHRONIZING SYMBOL AND FREQUENCY OF OFDM SIGNAL BY APPLYING THE SYMMETRIC-IDENTICAL PREAMBLE

(57) Abstract:

PURPOSE: A method for generating an SI (Symmetric-Identical) preamble and a method for synchronizing the symbol and frequency of an OFDM (Orthogonal Frequency Division Multiplexing) signal by applying the SI preamble are provided to improve the accuracy of timing and fine frequency synchronization of a received OFDM signal, and to enhance an error rate occurring near an original symbol start point. CONSTITUTION: An OFDM receiving system receives an OFDM signal through an RF(Radio receiver)(S510). The received analog OFDM signal is converted into a digital signal(S520). The OFDM receiving system separates a preamble having an SI structure from the received OFDM signal(S530). A correlator calculates an auto-correlation value between identical samples in the SI preamble separated from the received OFDM signal(S540). A peak detector calculates a size of the auto-correlation value and detects a sample having the biggest auto-correlation value size as a start point of a symbol, and a symbol timing/frequency synchronizer estimates symbol timing of the OFDM signal with the symbol start point(S550). And the symbol timing/frequency synchronizer estimates frequency offset to obtain frequency synchronization of the OFDM signal, using the frequency offset between identical samples(S560).



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